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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,449	12/08/2003	Lucio F. C. Pessoa	SC13036TS	2257
23125 7590 12/11/2007 FREESCALE SEMICONDUCTOR, INC. LAW DEPARTMENT 7700 WEST PARMER LANE MD:TX32/PL02 AUSTIN, TX 78729			EXAMINER TRAN, KHANH C	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 12/11/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/730,449		PESSOA ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Khanh Tran		2611	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-36, 38-42 and 44-48 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 13, 37, 43, 49-50 and 57-63 is/are rejected.
- 7) ☒ Claim(s) 3-12, 14-16 and 51-56 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 37, 43, 49 and 58 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The original disclosure does not disclose how "an adaptive filter system stored via at least one computer readable medium".

2. Claims 59-63 are also rejected because of dependency on claim 58.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 13, 50 and 57-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura U.S. Patent 6,925,177 B2.

Regarding claim 1, Nishimura invention is directed to an echo canceller having a predictive filter that generates an echo replica signal and an adder that subtracts the echo replica signal from a send input signal; see column 1 line 65 via column 2 line 5.

In column 4 lines 35-60, FIG. 2 shows the structure of a hands-free communication device having an echo canceller, which comprises a predictive filter 21, an amplifier 22, a gain controller 23, another amplifier 24, an adder 25, and a further amplifier 26.

The receiving input terminal  $R_{in}$  of the echo canceller 20 is connected to one input terminal of the predictive filter 21 and the receiving output terminal  $R_{out}$  of the echo canceller 20. The output terminal of the predictive filter 21 is connected to one input terminal of amplifier 22, and the output terminal of amplifier 22 is connected to the negative input terminal of the adder 25. The positive input terminal of the adder 25 is connected to the output terminal of amplifier 24. The sending input terminal  $S_{in}$  is connected to one input terminal of amplifier 24. The output terminal of the adder 25 is connected to one input terminal of amplifier 26, the other input terminal of the predictive filter 21, and the input terminal of the gain controller 23. The output terminal of amplifier 26 is connected to the sending output terminal  $S_{out}$ . The gain controller 23 has three gain control output terminals, which are connected to the other input terminals of the amplifiers 22, 24, and 26, respectively.

In light of the forgoing teachings,  $R_{in}$  corresponds to the claimed reference signal;  $S_{in}$  corresponds to the claimed desired signal; and the claimed error signal corresponds to the output of adder 25.

Nishimura does not expressly disclose applying a predetermined gain function to the error signal during a predetermined period of time to produce an output signal as claimed in the application claim.

As explained in column 5 lines 1-60, the gain controller 23 keeps amplifiers 24 and 26 set to gains of equal magnitude and opposite sign initially, so that the near-end component of the send output signal has the same level at the sending output terminal Sout as at the sending input terminal Sin. As any residual echo or other error present in the output of the adder 25 is amplified, degrading the quality of the send output signal. As further explained in Nishimura invention, by comparing the level of the output of the adder 25 with a predetermined value, the gain controller 23 applies a built-in control program; see column 5 lines 25-30 and lines 40-50. In view of the aforementioned discussion, because the gain controller 23 applies a built-in control program as long as the level of the output of the adder exceeds a predetermined value, one of ordinary skill in the art at the time the invention was made would have recognized that the built-in control program would correspond to the claimed predetermined gain function and the time in which the level of the output of adder 25 exceeding a predetermined value would corresponds to the claimed predetermined period of time.

Regarding claim 2, as explained in claim 1 rejection, the gain controller 23 applies a built-in control program by comparing the level of the output of the adder 25 with a predetermined value to detect the deterioration in echo cancellation performance; see also column 5 lines 40-50. Because the gain controller 23 applies a built-in control

program by comparing the level of the output of the adder 25 with a predetermined value, one of ordinary skill in the art at the time the invention was made would have recognized that the gain controller 23 detects the abrupt change of the echo cancellation performance.

Regarding claim 13, in column 5 lines 59-65, Nishimura teaches that if the output of the adder 25 does not exceed the predetermined level while the gain of amplifier 24 is increasing from -14 dB to 0 dB, indicating that the echo path does not provide amplification, the gain controller 23 terminates the above procedure by leaving the gains of amplifiers 22, 24, and 26 set at zero (0 dB).

Regarding claim 50, claim is rejected on the same ground as for claim 1 because of similar scope.

Regarding claim 57, FIG. 2 discloses that the filter 21 and gain controller 23 are part of an echo canceller.

Regarding claim 58, claim is rejected on the same ground as for claim 1 because of similar scope. Furthermore, as common knowledge of one of ordinary skill in the art, the method can be implemented in software for performing the claimed step.

***Allowable Subject Matter***

4. Claims 3-12, 14-16 and 51-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 17-36, 38-42 and 44-48 are allowed.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Furukawa et al. U.S. Patent 5,463,618.

Sih U.S. Patent 5,687,229.

Park U.S. Patent 6,594,359 B1.

Pessoa et al. US Patent Application Publication No. US 2003/0235244 A1.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCT



KHANH C. TRAN  
PRIMARY EXAMINER

12/10/2007  
AU 2611